

Forisomes, Method for Their Isolation, and Their Use as a Molecular Working Machine

Abstract

A protein body derivable from Fabaceae has a reversible, anisotropic contractability such that the protein body becomes thicker perpendicular to a longitudinal axis of the protein body and shorter along the longitudinal axis of the protein body when increasing a calcium ion concentration in a medium surrounding the protein body past a threshold value of 30 nM. The protein body becomes thinner perpendicular to the longitudinal axis and longer along the longitudinal axis when decreasing the calcium ion concentration below the threshold value of 30 nM. Also, the protein body becomes thicker in the direction perpendicular to the longitudinal axis when increasing a pH value of a medium surrounding the protein body to a value above 9.5 without becoming shorter along the longitudinal axis. The protein body becomes thinner in the direction perpendicular to the longitudinal axis without becoming longer decreasing the pH value below 9.5.